A42

180 via an optical fiber 178. For the wavelength conversion section 179, the present example uses a wavelength conversion section that is similar to the wavelength conversion section 20 shown in Fig. 1A and that is relatively small. The wavelength conversion section 179 is integrally provided on the frame that holds the alignment system 180, in which laser beam LB5 having the same wavelength as that of the exposure light that has been output from the wavelength conversion section 179 is used as illumination light AL.

Page 81, line 17 to page 82, line 5, delete current paragraph and insert therefor:

A43

In the above-described embodiment, description has been made that the laser device shown in Figs. 1A and 1B is used either as the exposure-dedicated light source or as the light source of the alignment system or the spatial-image measuring system. However, the laser device may be used as a regulating light source of a detecting system or an optical system for marks other than the above. In addition, the laser device may be used not only as the light source of the exposure apparatus, the testing apparatus, or the like used in the device-manufacturing step, but also as a light source of various other apparatuses, regardless of the use and like thereof (an example is an conventional apparatus using an excimer laser as a light source, such as a laser medical treatment apparatus for performing medical treatment for, for example, the near site and the astigmatism, by correcting, for example, the curvature or the irregularity of the cornea).

IN THE CLAIMS:

Please replace claims 1-19 as follows:

A44

1. (Amended) An exposure apparatus which illuminates a pattern of a first object with ultraviolet light from a laser device and exposes a second object with the ultraviolet light which has passed through the pattern of the first object, wherein

the laser device includes:

a laser light generation section which generates single wavelength laser light in a wavelength range of from an infrared region to a visible region;

an optical modulating section which modulates the laser light generated by the laser light generation section;

an optical amplification section including an optical fiber amplifier which amplifies the laser light generated by the optical modulating section; and

a wavelength conversion section which performs wavelength conversion of the laser light amplified by the optical amplification section into ultraviolet light by using a nonlinear optical crystal, and

the optical modulating section performs pulse modulation of the laser light from the laser light generation section, and feeds the modulated laser light to the optical amplification section in a period in which the ultraviolet light is output, and the optical modulating section feeds light of an amplifiable wavelength zone to the optical amplification section in a range substantially not influencing an output of the ultraviolet light even in a period in which the ultraviolet light is not output.

2. (Amended) An exposure apparatus as recited in claim 1, wherein

the optical modulating section performs pulse modulation of the laser light from the laser light generation section and feeds the modulated laser light to the optical amplification section in a period in which the ultraviolet light is output, and the optical modulating section reduces the peak level of the output from the laser light generation section and feeds the resultant laser light to the optical amplification section in a period in which the ultraviolet light is not output.

3. (Amended) An exposure apparatus as recited in claim 2, wherein

the peak level of the laser light to be fed from the optical modulating section to the optical amplification section in the period in which the ultraviolet light is not output is equal

to or smaller than 1/10 of the peak level of the laser light fed from the optical modulating section to the optical amplification section in the period in which the ultraviolet light is output, and

an average level of the light output from the optical amplification section in the period in which the ultraviolet light is output is substantially the same as an average level of the light that has been output from the optical amplification section in the period in which the ultraviolet light is not output.

4. (Amended) An exposure apparatus as recited in claim 3, wherein the optical modulating section feeds continuous light to the optical amplification section in the period in which the ultraviolet light is not output.

5. (Amended) An exposure apparatus as recited in claim 1, wherein

the optical modulating section includes an auxiliary light source which generates auxiliary light having a wavelength different from that of the laser light generated from the laser light generation section, and

the optical modulating section performs pulse modulation of the laser light from the laser light generation section, and feeds the modulated laser light to the optical amplification sections in the period in which the ultraviolet light is output, and the optical modulating section feeds the auxiliary light to the optical amplification section in the period in which the ultraviolet light is not output.

6. (Amended) An exposure apparatus as recited in claim 5, wherein

a wavelength zone of the auxiliary light is within a gain range of the optical amplification section and out of a wavelength range in which wavelength conversion is possible by the wavelength conversion section, and

the optical modulating section further includes a wavelength division multiplexing member which combines the auxiliary light and the laser light generated by the laser light

generation section, and a modulator which modulates light combined by the wavelength division multiplexing member.

7. (Amended) An exposure apparatus as recited in claim 5, wherein

a wavelength zone of the auxiliary light is within a gain range of the optical amplification section and out of a wavelength range in which wavelength conversion is possible by the wavelength conversion section, and

the optical modulating section further includes a modulator which modulates the laser light generated by the laser light generation section, and a wavelength division multiplexing member which combines the light generated by the modulator and the auxiliary light.

8. (Amended) An exposure apparatus as recited in claim 1, wherein

the optical modulating section includes an auxiliary light source which generates auxiliary light having a polarized state different from that of the laser light generated by the laser light generation section, and

the optical modulating section performs pulse modulation of the laser light from the laser light generation section, and feeds the modulated laser light to the optical amplification sections in the period in which the ultraviolet light is output, and the optical modulating section feeds the auxiliary light to the optical amplification section in the period in which the ultraviolet light is not output.

9. (Amended) An exposure apparatus as recited in claim 8, wherein the auxiliary light is not in a polarized state that allows wavelength conversion into ultraviolet light by the wavelength conversion section, and

the optical modulating section further includes a polarized-wave combining member which combines the auxiliary light and the laser light generated by the laser light generation

section, and a modulator which modulates light combined by the polarized-wave combining member.

A44

10. (Amended) An exposure apparatus as recited in claim 8, wherein the auxiliary light is not in a polarized state that allows wavelength conversion into ultraviolet light by the wavelength conversion section, and

the optical modulating section further includes a modulator which modulates the laser light generated by the laser light generation section, and a polarized-wave combining member which combines the light generated by the modulator and the auxiliary light.

11. (Amended) An exposure apparatus which illuminates a first object with ultraviolet light from a laser device and exposes a second object with the ultraviolet light which has passed through the pattern of the first object, wherein the laser device includes a laser light generation section which generates single wavelength laser light, an optical amplification section including an optical fiber amplifier which amplifies the laser light, and a wavelength conversion section which performs wavelength conversion of the amplified laser light, and

a light feed section is provided which feeds light to the optical amplification section in a condition different from that in a period in which the ultraviolet light is output even in a period in which the ultraviolet light is not output.

12. (Amended) An exposure apparatus as recited in claim 1, further comprising:

an optical splitter section which splits the laser light generated by the laser light generation section into a plurality of laser light beams, wherein

the optical amplification section is independently provided for each of the plurality of the split laser light beams, and

the wavelength conversion section collects fluxes of the laser light beams output from the plurality of optical amplification sections and performs wavelength conversion thereof.

13. (Amended) An exposure apparatus as recited in claim 1, wherein

the laser light generation section generates single wavelength laser light having a wavelength of near 1.5 μm, and

the wavelength conversion section converts a fundamental wave output from the optical amplification section having a wavelength of near 1.5 μm into ultraviolet light of a eighth-order harmonic wave or a tenth-order harmonic wave and outputs the converted light.

14. (Amended) An exposure apparatus as recited in claim 1, wherein the laser light generation section generates single wavelength laser light having a wavelength of near 1.1 μm, and

the wavelength conversion section converts a fundamental wave output from the optical amplification section having a wavelength of near 1.1 μm into ultraviolet light of a seventh-order harmonic wave and outputs the converted light.

15. (Amended) An exposure apparatus as recited in claim 1, comprising:

an illumination system which irradiates ultraviolet light from the laser device onto a mask as the first object: and

a projection optical system which projects an image of a pattern of the mask onto a substrate as the second object.

16. (Amended) An exposing method using an exposure apparatus as recited in claim 1, comprising performing alignment between the first object and the second object using the ultraviolet light generated by the laser device.

17. (Amended) An exposing method which illuminates a first object with ultraviolet light from a laser device and which exposes a second object with the ultraviolet light which has passed through the pattern of the first object, comprising:

amplifying single wavelength laser light is amplified by an optical fiber amplifier, and converting in wavelength the laser light thus amplified into ultraviolet light, and

Cancl. A44

feeding light to the optical fiber amplifier in a condition different from that in a period in which the ultraviolet light is output even in a period in which the ultraviolet light is not output.

18. (Amended) A method of manufacturing an exposure apparatus which illuminates a pattern of a first object with ultraviolet light from a laser device and which exposes a second object with the ultraviolet light which has passed through the pattern of the first object, comprising configuring the laser device by disposing, with a predetermined positional relationship,

a laser light generation section which generates single wavelength laser light in a wavelength range of from an infrared region to a visible region,

an optical modulating section which modulates the laser light generated by the laser light generation section,

an optical amplification section including an optical fiber amplifier which amplifies the laser light generated by the optical modulation section, and

a wavelength conversion section which performs wavelength conversion of the laser light amplified by the optical amplification section into ultraviolet light by using a nonlinear optical crystal, and

the optical modulating section is configured such that the laser light output from the laser light generation section is pulse-modulated and fed to the optical amplification section in a period in which the ultraviolet light is output, and light of an amplifiable wavelength zone is fed to the optical amplification section in a range substantially not influencing output of the ultraviolet light even in a period in which the ultraviolet light is not output.

19. (Amended) A device manufacturing method including transferring a mask pattern onto a substrate by using the exposure apparatus as recited in claim 1.

REMARKS